Model: XPS036

True Day/Night 550/600 TVL Speed Dome CCTV Camera with 36x Zoom

PLEASE READ THIS MANUAL BEFORE YOU INSTALL OR START USING THE XPS036 SPEED DOME

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at the user's own expense.

PRECAUTIONS:

- Only qualified and experienced person can carry out the installation. In many countries and areas licensed personnel is required
- Always take safety codes into consideration during installation.
- Use reliable tools only, poor quality tools may cause damage to both human and property
- Check the strength of all item onsite that are related to installation in advance. It is recommended that the stand of dome be at least 4 times stronger than the weight of the dome and its accessories.
- Keep all the original dome package materials in case of future repacking and transportation.
- Choose and install speed dome according to environment requirement (Refer to the Product Features).

WARNINGS:

- Avoid installing this speed dome in hazardous places where inflammable or explosive materials are stored or used.
- Indoor dome is not designed for outdoor environment.
- This speed dome runs on 24V AC.
- Connect to power only after completing installation.
- Disassemble can only be carried out by qualified personnel.
- Use soft towel to clean the down cover when necessary. Avoid using caustic detergent.
- Avoid aiming camera to strong light.

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True Day/Night 550/600 TVL Speed Dome CCTV Camera with 36x Zoom

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1. Product Description

The XPS036 is a Professional True Day/Night Speed Dome with 36x Zoom with Mechanical IR Filter (making it IR sensitive for use with Infra Red lighting). This camera is designed for use in very high risk applications where very high quality surveillance is required and features an Xvision Auto Iris Zoom Lens with Auto Focus and 432x Zoom (36x Optical + 12x Digital) for easy selection of any viewing angle between 0.5 and 64°. It can be panned, tilted and zoomed in seconds to the view required.

It is ideal for covering large areas and for viewing objects that are far away from the camera or for viewing moving objects that are at varying distances from the camera thanks to its 36x zoom and auto focus function. The camera has an RS485 connection allowing the Pan, Tilt, Zoom, Focus and On Screen Display set up of its features to be controlled remotely by any DVR or Controller that supports Pelco D/P. It is weatherproof allowing it to be used internally or externally.

A variety of brackets are available for the camera depending on how and where you wish to mount it. Mounting options include Wall Mount (as supplied), Pendant Mount on a Ceiling, Corner and Pole Mount (additional brackets required).

2. Features

- True Day/Night Camera
- Offers High Resolution 550/600 TVL images
- Sleek design for professional applications
- Cable Managed Bracket
- Hi-accuracy motor drives with 0.1 degree preset accuracy, min. 0.1 degree moving without any vibration.
- 360 degree continuous panning, 90 degree tilt with auto flipping.
- Built in DSP camera, with auto focus, auto BLC, auto light control, auto white balance etc. functions.
- Timer runing with up to 8 scheduled functions.
- 220 presets, 4 sequences with up to 32 presets each
- Supports up to 4 patterns of a minimum of 180 seconds each, 4 pannings, 8 regions, 8 privacy masks which can be set to specific requirements
- Features Auto Running for when the system is idle
- Multiple RS485 protocols
- Supports VCL, PELCO-P, PELCO-D, PELCO-C, PHILIPS, VICON, KALATEL, AMERICAN DYNAMICS, MOLYNX, PANASONIC protocols.
- On-Screen Display Menu for Programmable Functions and features an on screen compass and pan/tilt degrees indicator.
- OSD Menu can be customized to suit user
- Dome, preset, pattern, panning and region titles can be set to not display, display or display for a period of time.
- Backup Memory for keeping user configurations after restarting dome
- Designed for external wall mounting as supplied
- Pole Mount, Pendant Ceiling Mount and Corner Mount brackets also available.

3. Installation

3.1 Installation Preparation

You may need the following tools for the installation:

Screws and nuts, screw driver, Small slotted screw driver, Wire cutter, Ladder, Drill, Saw.

3.1.1 Cables

- **Video Coaxial Cable**

The video coaxial cable should be:

1) 75 Ohm impedance.

2) Solid copper wire.

3) 95% braided copper shield.

Check the max transmission distance referring to the chart below:

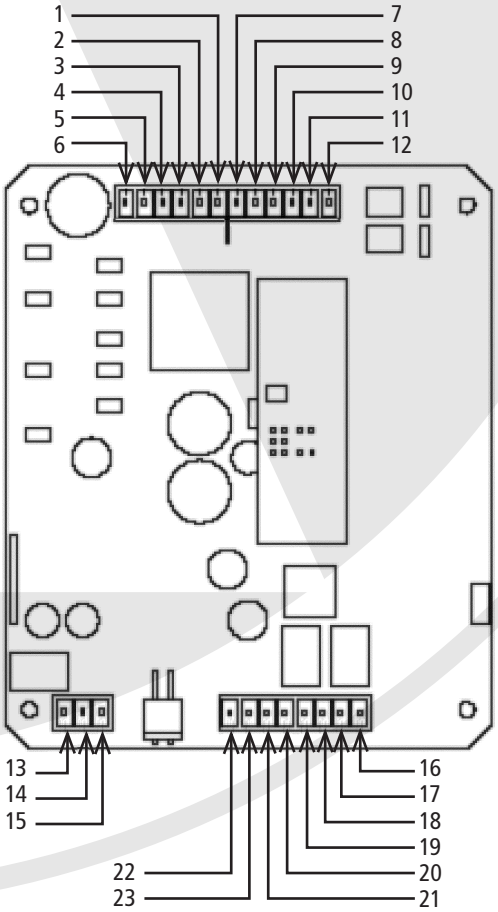
INTERNATIONAL GAUGE	TRANSMISSION DISTANCE(MAX.)
RG 59/U	750ft (229m)
RG 6/U	1,000ft (305m)
RG 16/U	1,500ft (457m)

3.1.2 DIP Switch & Jumper settings

Please refer to Appendix I to set the following:

- Protocol & Baud rate
- Dome address
- Video cable type
- Alarm output method
- RS485 termination resistor

3.1.3 Wiring Diagram



- **RS485 (Data) Cable**

0.56mm (24AWG) twisted pair 's maximum transmission distances are as follows:

BAUD RATE	TRANSMISSION DISTANCE (MAX.)
2400bps	5,906ft (1800m)
4800bps	3,937ft (1200m)
9600bps	2,625ft (800m)

NOTE: Use RS485 distributor if you need to transmit further. To learn more about RS485, please refer to Appendix III.

1. Alarm Input1
2. Alarm Input2
3. Alarm Input3
4. Alarm Input4
5. Alarm Input5
6. Alarm Input6
7. Alarm Input7
8. Alarm Input Common Port
9. Alarm Output1
10. Alarm Output1
11. Alarm Output2
12. Alarm Output2
13. Power - (Black)
14. Not Used
15. Power + (Red) 24V AC
16. Video Output
17. Video Ground
18. RS485 +
19. RS485 -
20. Not Used
21. Not Used
22. Not Used
23. Not Used

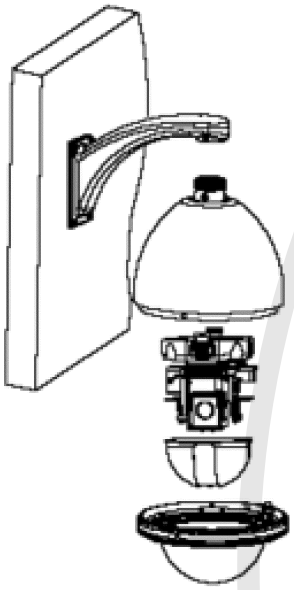
3.2 Wall Mounting Guide

ADDITIONAL MOUNTING BRACKETS ARE AVAILABLE FOR CORNER MOUNT, PENDANT CEILING MOUNT AND POLE MOUNTING OPTIONS.

REFER TO THE MANUAL SUPPLIED WITH THE BRACKETS FOR FURTHER CORNER, CEILING OR POLE MOUNTING INSTRUCTIONS.

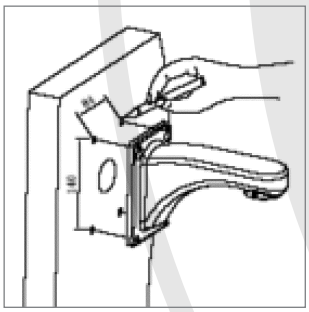
Installation Requirements:

The wall mounting surface must be firm enough to bear 4 times the weight of the speed dome.



1. Mark screws positions

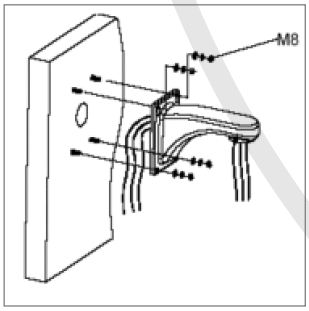
Take the bracket base as the template to mark the screws positions on wall. Drill the holes and put expansion screws inside.



2. Install bracket

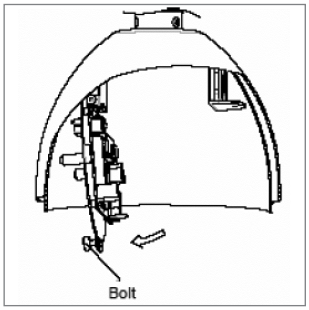
Put Power/RS485/Video cables through the cavity of bracket, and then install bracket on wall.

NOTE: Put cables through the wall or aside the bracket.



3. Loosen the bolt and swing away the power board holder.

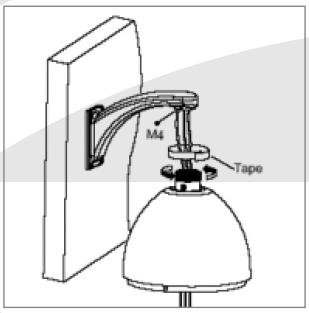
Loosen the bolt and swing away the power board holder.



4. Install housing

Insert cables through the hole at the top of the housing Apply water-proof tape to the housing thread. Screw the housing to the wall mount adaptor with an M4 screw.

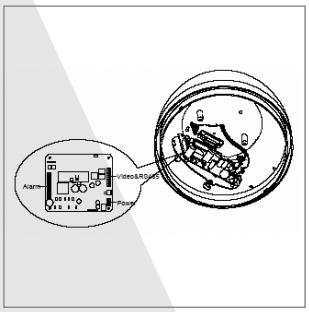
NOTE: Apply silicone to the gap between bracket and wall in the case of outdoor dome.

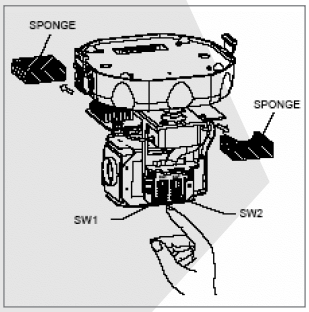


5. Connect cables

Connect the cables to the power board. Swing the power board holder back and turn on the power. The red LED will light up. Turn off the power after checking.

NOTE: There are signs for each port. Please connect cables as picture shown. Please MAKE SURE power is off before connecting cables.



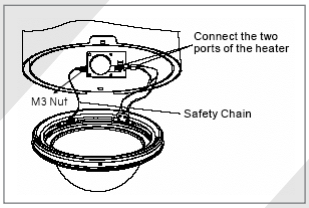


6. Set dome ID, baud rate and protocol

Set dome ID, baud rate and protocol via DIP switches Remove the two sponges.

7. Fix Safety Chain

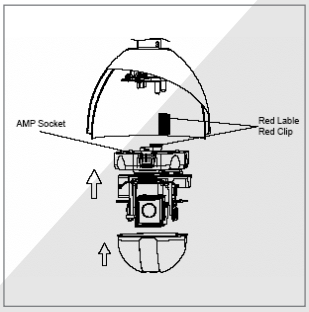
Attach the safety chain with an M3 screw to prevent the down cover from dropping.



8. Install black liner and Pan/Tilt Module

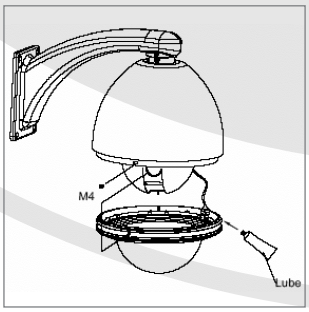
Push the black liner into the two locking tabs. Align the pan/tilt module to the two clips, red to red, black to black align the holes & push the module upward until you hear two click sounds.

NOTE: Be sure the AMP sockets are clean. DO NOT forget to remove the lens cover.

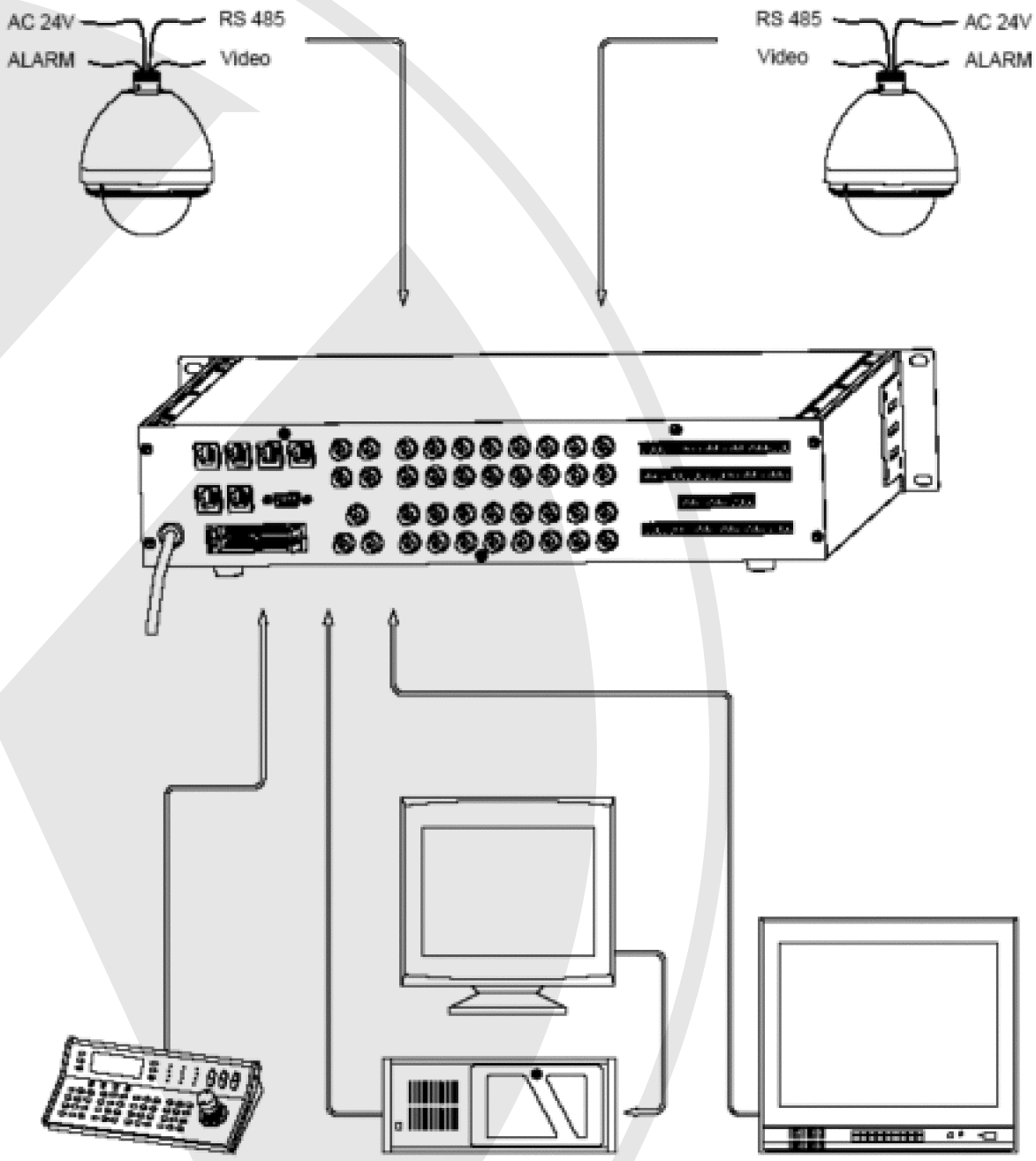


9. Install down cover

Loosen the two M4 screws on the cover ring. Apply lubricant to the O-ring to make it easier to slip in. Push upward the down cover into the housing and then fasten down.



4. System Connection



5. Operating Instructions

Two methods are available for carrying out the operation by the system controller.

1. Press the combined hot keys to operate different functions. Refer to the system controller manual for the detailed commands.

2. Access the OSD menu and operate according to the following instructions.

INITIAL INFORMATION

When you power up or restart the dome, the initial information below will display on screen when the dome is conducting self-testing. The information will disappear after the dome receives the first effective command.

```
Dome S/N      :0000000000000000
Dome ID       :0001<Hard>
Baudrate      :4800
Protocol      :FACTORY
Model:        :
Version       : 1.00
Pan Speed     :6500
Temp          :037C
H-Check       :Pass
V-Check       :Pass
Camera        :Pass
Ready
```

Dome S/N: The dome's serial number

Dome ID: The dome ID address set by DIP switch or keyboard.

Baudrate: Baud rate for dome control bus.

Protocol: The dome's controlling protocol. (please refer to Appendix I for more details)

Model: The dome model number.

Fan Speed: The speed of current running fan calculated by rounds per minute.

Temp: The dome inside temperature. Unit C or F

5.1 SYSTEM MENU

- Access the dome's main system menu on your monitor by calling preset 95 once or calling preset 1 twice within 5 seconds.

Note: The way to call a preset may vary among keyboards from different manufactures. Please read those manuals to learn keyboard operation.

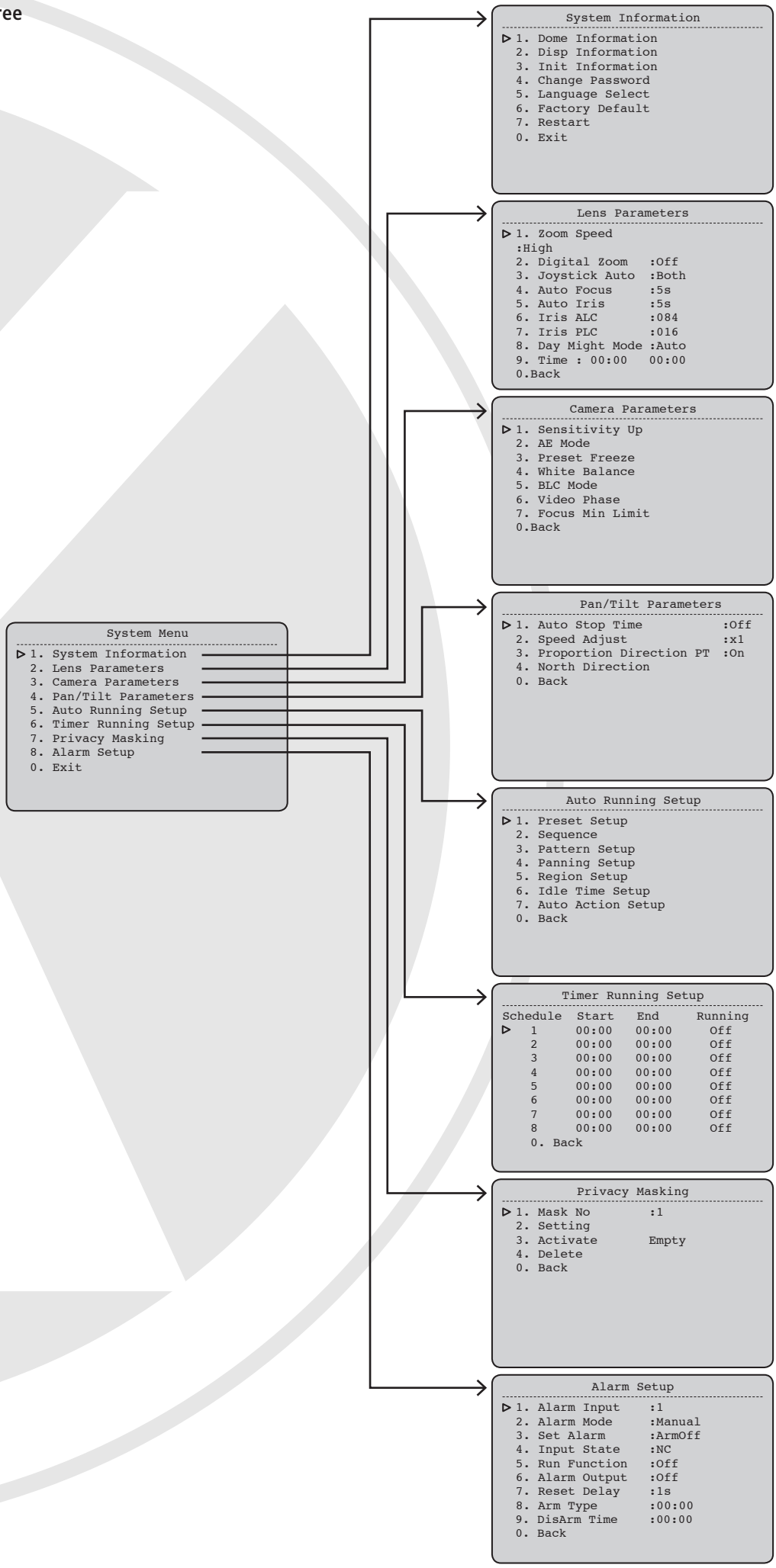
- When there is password protection, user needs to input the correct 6-bit password to access the OSD menu. (Original password is 000000).
- To input password, move the joystick up or down to select number (0-9), move the joystick left or right to choose password digit. If the input password is wrong, the password input window will close.

Note: You still can control the dome with a wrong password, but can not access to the OSD menu.

```
              System Menu
------------------------------------------------------------
▷ 1. System Information
  2. Lens Parameters
  3. Camera Parameters
  4. Pan/Tilt Parameters
  5. Auto Running Setup
  6. Timer Running Setup
  7. Privacy Masking
  8. Alarm Setup
  0. Exit
```

The opened menu will disappear automatically without receiving any operation command in 1 minute. All the settings will be saved automatically to protect against power cuts.

5.1.1 Menu Tree



5.2 Menu Operation

5.2.1 Selecting Items

In the main menu, the cursor flashes on the left, move the joystick up or down to move the cursor to the desired setting item. Move the joystick to the right to select the item.

Select an item to:

1. Access its sub-menu

2. Run a specific function

3. Change its value or edit its title.

5.2.2 Changing Values

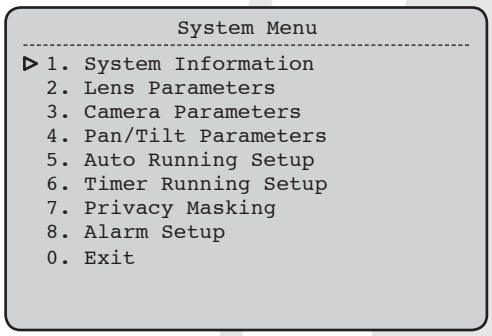
Move the joystick up or down to change the value, move the joystick to the left to save the setting and to exit. In the case of more than one value, move the joystick left or right to select place, move up or down to change value. Move the joystick to the leftmost to save the setting and to exit.

Note: To increase the value changing speed, hold the joystick in up or down position for more than 10 seconds.

For example: In order to change the password, please follow these steps.

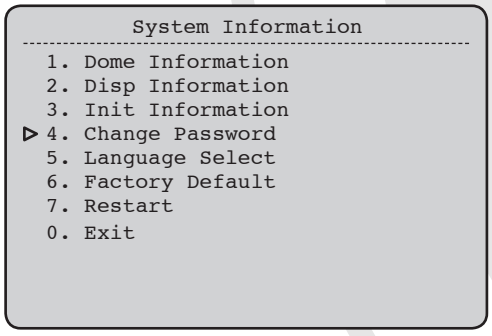
1. Call preset 95 or call preset 1 twice within 5 seconds to access to the main menu.

2. Move the joystick down to let the cursor point to System Information then move the joystick to the right to select it.



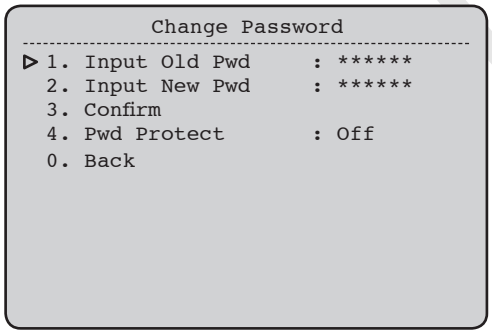
3. Move the joystick down to let the cursor point to Change Password then move the joystick to the right to select it.

Note: Here-in-after menu paths are written in the following format: Main menu > System Information >Change Password



4. Input the old password and new password, Default password is 000000. Move joystick left or right to set a digit; Move up or down to change a number. Move cursor to leftmost index position after inputting a new password

Select "3. Confirm" to confirm the new password. The system will indicate "Old Password error" or " Pwd Modify Success".



5.2.3 Editing Titles

Access Dome Title Edit Menu following the path: **System menu > Dome Information > Title > Input**

Move the cursor left or right to select a character, move down to edit the blinking character. Zoom In/out to switch character groups:

- Number [0 1 2 3 4 5 6 7 8 9]
- Capital [A B C]
- Lowercase [a b c]
- Sign [/ + - ( ) & % # ! $]
- Special characters [á í ó w é]

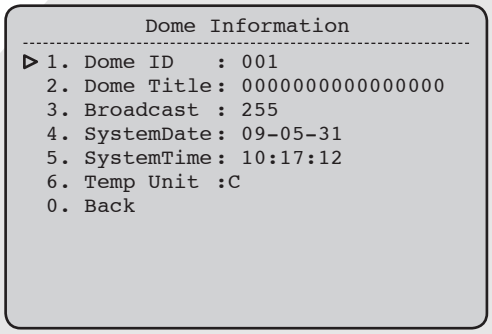
Move to desired character, then move up to select or move down to cancel. Note: Call preset 1 to switch between Modify and Insert editting method.

5.3 System Information

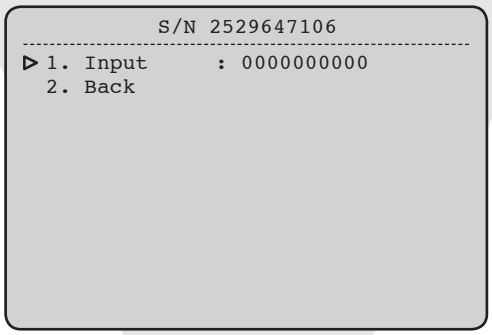
System menu > System Information

5.3.1 Dome Information

System Menu > System Information > Dome Information



- **Dome ID:** Dome ID shows the current dome's ID number. Each dome has its unique ID ranging from 001 to 255 (255 is default broadcast ID). The Dome ID can be set only when DIP switch is in Programmable ID mode. Move the cursor to Dome ID and then move the joystick to the right to access dome ID setting submenu:

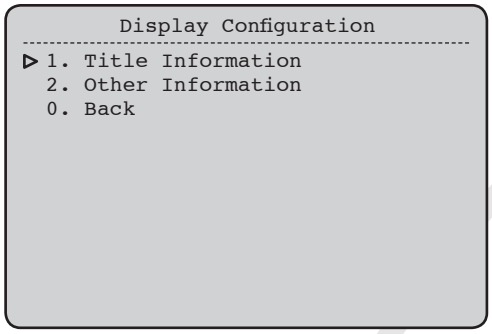


  - Move the cursor to Input and then move the joystick to the right, input the S/N in accordance with the number above the line.
  - Move the joystick up or down to change the value and then move the joystick to the left to save the setting.

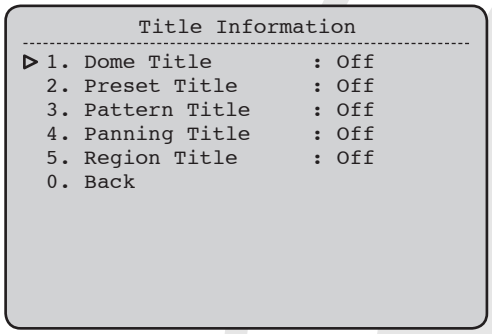
- **Dome Title:** It is the title of the dome. Assigning a name to a dome helps user to remember which dome it is.
- **Broadcast:** It sets broadcast. ID number (001~255). The ID number should be different from any other dome, default setting is 255. When a command is sent to broadcast ID, all the domes connected to the control bus accept the command.
- **System Date:** Set the System Date. Display format is year-month-day.
- **System Time:** Set the system time in order to show the time on screen and enable timer scheduled functions. Display format: hour : min : sec
- **Temp Unit:** Select temperature unit C or F
- **Back:** Return to previous menu.

5.3.2 Display Information

System Menu > System Information > Display Information



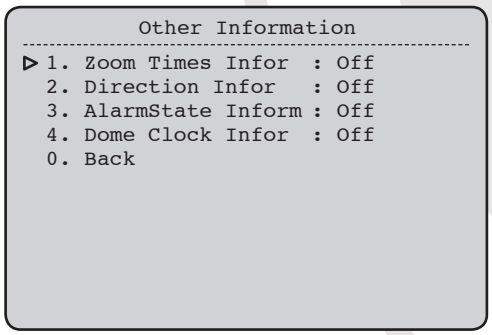
- **Title Information**



This sub-menu allows user to select either display some information on screen or not. Information includes:

- **Dome Title (ON/OFF)**: To set whether display dome title.
- **Preset Title (ON, OFF, 3s-255s)**: To set ON or OFF or display time for preset title when calling preset.
- **Pattern Title (ON, OFF, 3s-255s):** To set ON or OFF or display time for pattern title when the dome is replaying pattern.
- **Panning Title (ON, OFF, 3s-255s)**: To set ON or OFF or display time for panning title when the dome is performing a panning.
- **Region Title (ON, OFF, 3s-255s)**: To set ON or OFF or display time for region title when the camera moves to the region.

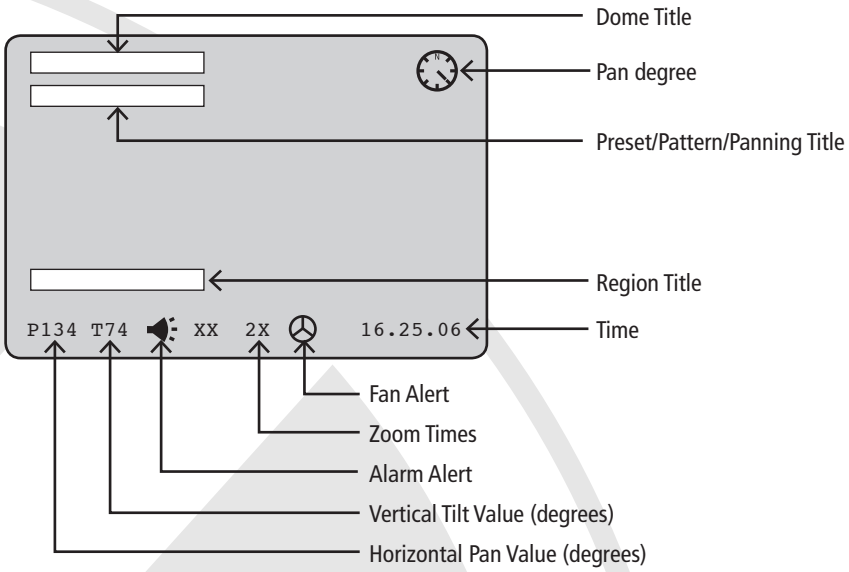
- **Other Information**



This sub-menu allows user to select either display some information on screen or not. Information includes:

- **Zoom Times Infor (ON, OFF, 3s-255s):** To set ON or OFF or the display time of the zoom times.
- **Direction Infor (ON, OFF, 3s-255s):** To set ON or OFF or the display time of camera pointing direction.
- **Alarm State Infor (ON/OFF):** To set whether display the alarm state information
- **Dome Clock Infor (ON/OFF):** To set whether display the system time.

Information text Position



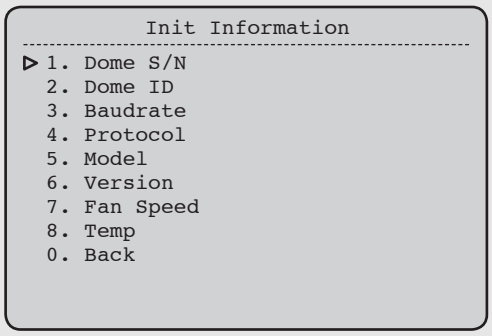
Note:

Fan symbol indicates fan speed below 1000 rounds/min.

Alarm symbol indicates an alarm comes in.

5.3.3 Init Information

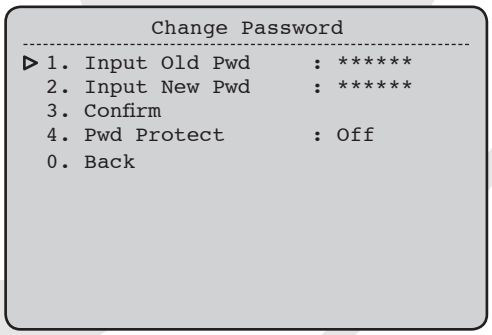
System Menu > System Information > Init Information



This menu shows the dome's summary information, helping user to know the dome's states. Information includes: Dome S/N number, Dome ID (hard ID or soft ID), BaudRate, Protocol, Dome model, Software version, Fan speed (rounds per min), Dome inside temperature.

5.3.4 Change Password

System Menu > System Information > Change Password

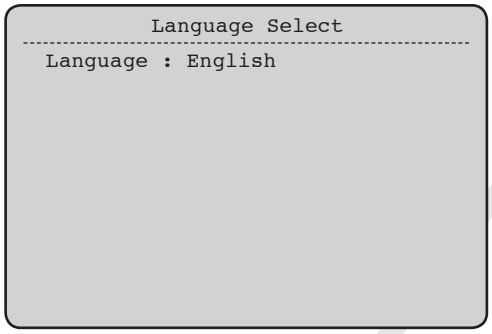


- **Old password**: Input old password, Default password is 000000.
- **New password:** Input new password.
- **Confirm:** To confirm the password changing. System will pop-up "old password error" if old password input is not correct,or pop-up "Pwd modify success" to indicate password has been changed.
- **Pwd protect:** To enable or disable password protection. System will request password to change this setting. If Pwd Protect is ON, user needs to input password to access menu or set preset.

Note: Contact your supplier for master password if you forget the password.

5.3.5 Language Select

System Menu > System Information > Language Select



Select one language.

5.3.6 Factory Default

System Menu > System Information > Factory Default

Select Factory Default to restore factory default settings. System will request password to set it. Factory default will not change dome ID.

List of Default Settings

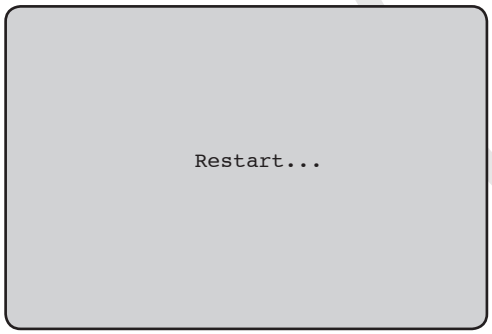
Zooming Speed	HIGH
Digital Zoom	x10
Joystick Auto	Both
Auto Focus	5S
Auto Iris	5S
Iris ALC	084
Iris PLC	016
Day Night Mode	Auto
Sensitivity	1/1.5
Preset Freeze	Off

White Balance	Auto
Focus Min Limit	30cm
Idle Tune	30S
Auto Action	Off
Alarm Mode	Manual
Set Alarm	Armoff
Input State	NC
Run Function	Off
Alarm Output	Off
Reset Delay	20S

5.3.7 Restart

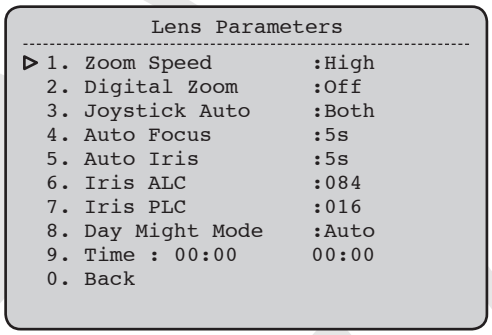
System Menu > System Information > Restart

Select Restart to reboot the dome. Then the pop-up window appears as below. Settings will not change after restarting.



5.4 Lens Parameters

System Menu > Lens Parameters



5.4.1 Zoom Speed

Set the zoom speed level to High or Low.

5.4.2 Digital Zoom

Digital zoom magnifies the picture by duplicating pixels. The picture is enlarged but the resolution remains the same. This menu sets the maximum digital zoom.

- **OFF**: Turn off digital zoom
- **X1 to X12**: Max. digital zoom times

5.4.3 Joystick Auto Mode

To set automatic restore mode. When the joystick moves, the selected function will start. Function options are:

- **Both:** Joystick movement triggers both auto focus and auto iris. (default)
- **Focus:** Joystick movement triggers auto focus only.
- **Iris:** Joystick movement triggers auto iris only.
- **Off:** Joystick movement triggers none of the functions.

5.4.4 Auto Focus

The system default is set to Auto Focus. Focus can also be manually controlled by key board or matrix. For manual operation details, please refer to keyboard or matrix operation manual. The setup is used to restore auto focus function after focus has been manually adjusted.

- **OFF:** Never restore auto focus. That means focus is always in manual mode
- **001-255:** The dome will start auto focus in the number of seconds that have been set (001 to 255) after user manually adjusts focus.

Note: The camera might not be able to auto focus in the following conditions:

1) Target is not in the centre of image.

2) Near and far targets in the same picture can not be both clear.

3) Target is an object with strong light, such as spotlight etc.

4) Target is behind the glass with water drop or dust.

5) Target moves too fast.

6) Target is supposed to be a large area such as a wall.

7) Target is too dark or vague.

8) Joystick Auto set Off or Joystick Auto set Iris, or Focus is set OFF.

5.4.5 Auto Iris

Light passes through the iris and reaches CCD to form an image. A larger iris lets more light pass through causing the image to be brighter. Iris can be controlled automatically or manually. For manual operation detail, please refer to keyboard or matrix manual.

The setup is used to restore auto Iris function after Iris has been manually adjusted.

- **OFF:** Never restore auto iris. That means iris is always in manual mode.
- **001-255:** The dome will start auto iris in the speed that have been set (001 to 255 seconds) after user manually adjusts iris.

5.4.6 Iris ALC

To set the iris average level control value. The value could be 000~255.

- **Default value:** 22X Colour Camera: 066, 23X Colour/Mono camera: 084 (different camera has different ALC default value)

Note: Changing default value is strongly NOT recommended.

5.4.7 Iris PLC

To set the iris peak level control value. The value could be 000~127.

- **Default value:** 23X Colour/Mono camera: 016 (different camera has different PLC default value)

Note: Changing default value is strongly NOT recommended.

5.4.8 Day/Night Mode

To set the dome Colour/Monochrome switching mode. Colour mode is suitable to work in daytime because it needs higher illumination. By contrast, light sensitivity of mono mode is much higher. It is suitable to work at night in low illumination environment but the video is black and white.

- **Auto:** The dome will automatically change modes in accordance with the environment illumination.
- **Day:** The dome is always in colour mode.
- **Night**: The dome is always in monochrome mode.
- **Time**: Set schedule for mode change.

Note: You need to set exposure mode to Auto in order to get Auto Day/Night mode

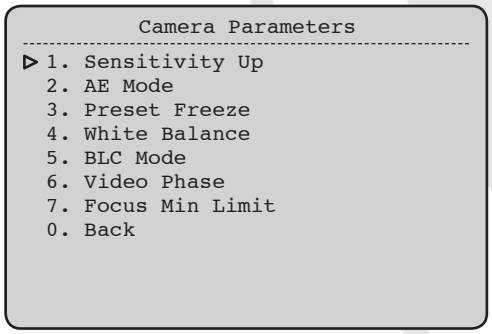
5.4.9 Time

Set the Day Mode start time and Night mode start time. If the two times are same with the other, the camera will stay in current mode all the time.

Note: Iris PLC, IRF Control, Day Mode Time, Night Mode Time can only be set in certain camera models.

5.5 Camera Parameters

System Menu > Camera Parameters



5.5.1 Sensitivity Up

In extremely low illumination circumstance, the images retrieved by the dome are very dark. Slow shutter gathers more light, pictures will be brighter.

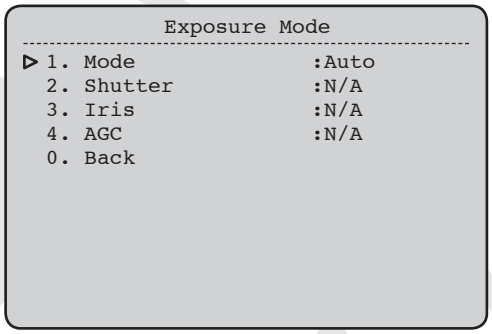
- **OFF:** Disable this function. (default) 1/1.5, 1/3, 1/6, 1/12, 1/25: The smaller value represents brighter pictures.

Note:

- High sensitivity will make video sluggish.
- Sensitivity up is only available when AE mode is Auto.

5.5.2 AE Mode

System Menu > Camera Parameters > AE Mode

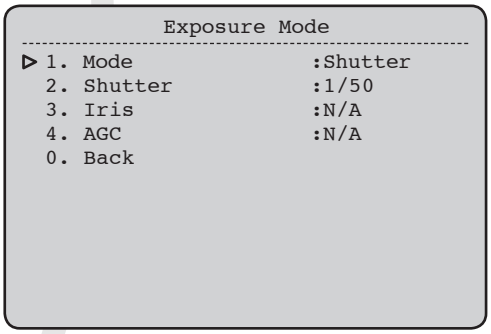


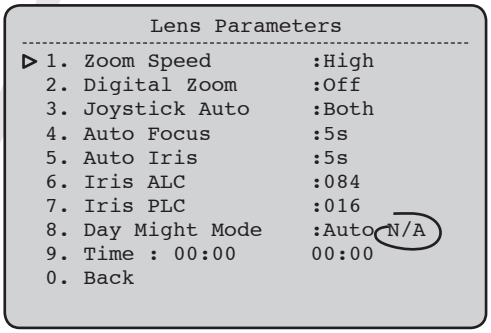
- **Mode**
  - The value options are: Auto, Shutter, Iris and AGC. The setting will take priority overall other settings.
- **Shutter**
  - Set Shutter speed as priority, available: settings are 1/1.5, 1/3, 1/6, 1/12, 1/25, 1/100, 1/150, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/30000
- **Iris**
  - Set Iris as priority. Values are: F1.6, F2.2, F3.2, F4.4, F6.4, F8.8, F12, F17, F24, F34
- **AGC**
  - Set Auto gain control as priority. Values are: 0dB, 6dB,12dB,18dB,24dB,30dB. Higher dB value makes image brighter.

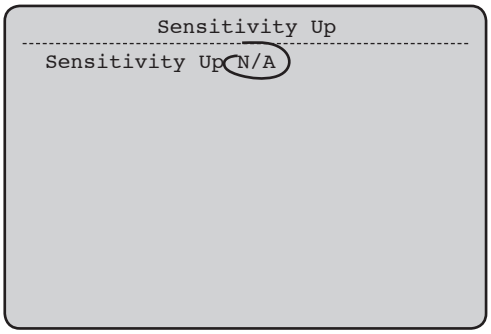
Note:

- Day/Night Auto mode and Sensitivity Up will be void if Exposure mode is not Auto mode. See example screens below.
- **Only one of settings for Shutter, Iris and AGC will take effect**

MODE	Shutter	Iris	AGC
Auto	N/A	N/A	N/A
Shutter	1/1.5, 1/3, 1/6, 1/12, 1/25, 1/100, 1/150, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/30000	N/A	N/A
Iris	N/A	F1.6, F2.2, F3.2, F4.4, F6.4, F8.8, F12, F17, F24, F34	N/A
AGC	N/A	N/A	0dB, 6dB, 12dB, 18dB, 24dB, 30dB.

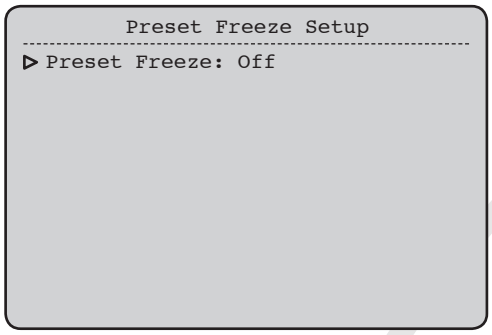






5.5.3 Present Freeze

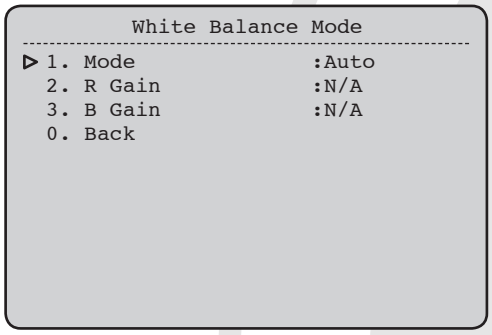
System Menu > Camera Parameters > Preset Freeze



If Preset Freeze is On, the current image will freeze until the image of the preset presents. Therefore you can not see the scene between the current position and the preset. This feature reduces useless data traffic in web application & save DVR storage space.

5.5.4 White Balance

System Menu > Camera Parameters > White Balance

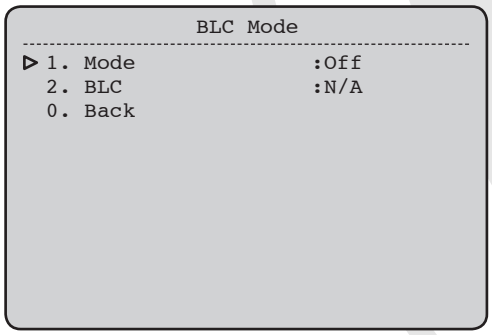


White balance simulates sun light circumstance. However in certain lighting conditions, user may want to manually adjust the red (R Gain) and blue (B Gain) settings for optimal viewing. The value options are:

- **AUTO**: Auto white balance. (default setting)
- **USER**: Manually set the red and blue values.
- **R Gain & B Gain Set:** red and blue color depth.

5.5.5 BLC Mode

System Menu > Camera Parameters > BLC Mode



If the backlight is bright, the objects in the centre of the picture may appear dark. The dome can auto adjust the brightness of the whole image according to the brightness of centre point.

- **OFF**: Disable the function.
- **BLC**: Standard BLC mode.
- **WDR (Does not appear on OSD Menu)**: Call preset 62 to set as "WDR ON", Call preset 63 to the "WDR OFF"

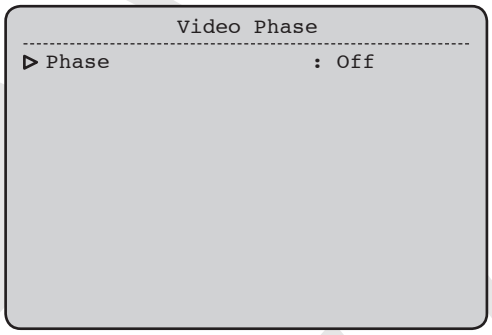
MODE	BLC	WDR
Off	N/A	N/A
BLC	000~255	N/A
WDR	N/A	000~128

When the backlight mode is setting in BLC Mode, set the values as:

- **000**: Disables backlight compensation function.
- **001-255:** Choose different backlight compensation grade. Higher value means more backlight compensation.

5.5.6 Video Phase

System Menu > Camera Parameters > Video Phase

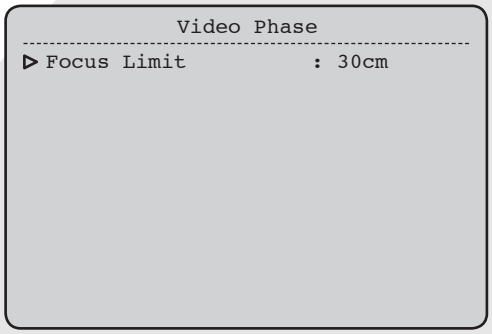


- **OFF**: Disable this function.
- **001~360:** Choose the suitable phase to get synchronous video.

Note: Some models only have ON/OFF.

5.5.7 Focus Min Limit

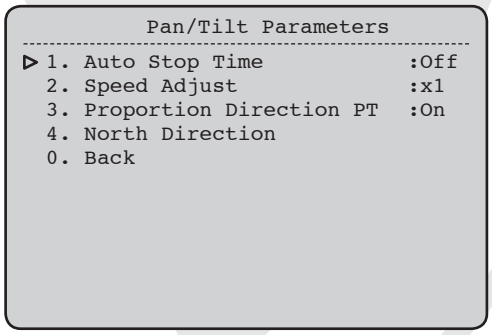
System Menu > Camera Parameters > Focus Min Limit



Set a minimum distance from the lens, the camera will not focus on objects in that distance. E.g. This feature can prevent camera from focusing on the down cover. Values for focus limit are: 1cm, 10cm, 30cm, 100cm

5.6 Pan/Tilt Parameters

System Menu > Pan/Tilt Parameters



5.6.1 Auto Stop Time

For some particular protocols, the dome will not stop moving even there is no operation on controller.

This menu item sets the time that, after a specified time period, the dome will stop itself. Values are in 50ms unit:

- **OFF:** Disable this function (default setting)
- **001~255:** After value x 50ms the dome will automatically stop moving. For example: 003 means the dome will automatically stop moving after 150ms.

5.6.2 Speed Adjust

Some protocols' controlling speed is either faster or slower, set Speed Adjust to adjust the dome movement. Options are as below:

- **X1:** Original speed (default setting)
- **↑2 ~ ↑32:** Times faster than original speed.
- **↓2 ~ ↓32:** Times slower than original speed.

5.6.3 Proportion Direction PT

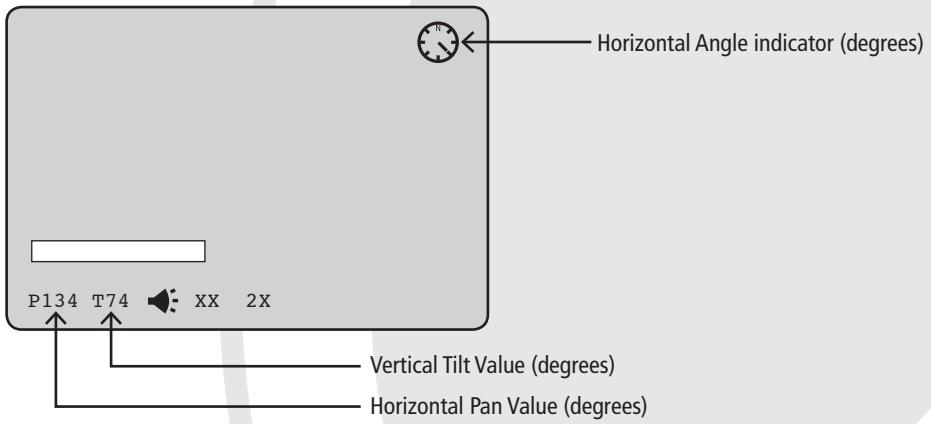
The dome moves at a speed of certain degrees per second. Objects on screen move much faster in telescope than in widescope, even undesirable too faster in some case. This function decreases the dome movement speed while zooming in.

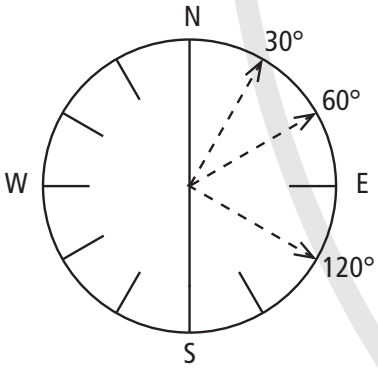
- **ON:** Enable the function (default setting)
- **OFF:** Disable the function

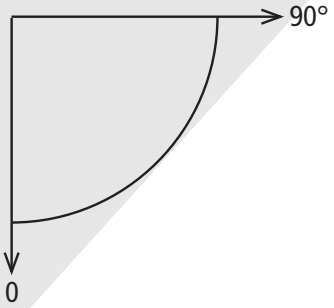
5.6.4 North Direction

User can set dome's orientation on screen by using joystick to position north. The Pan degree is the relative degree to a specific direction. That direction is called NORTH.

Note: Not restricted to geographical north.

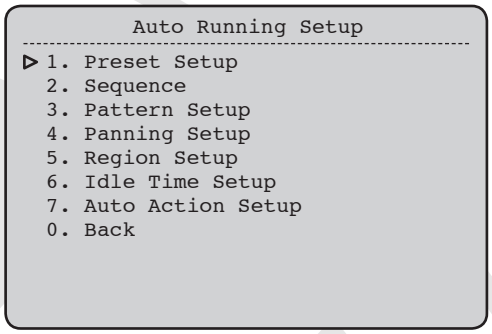






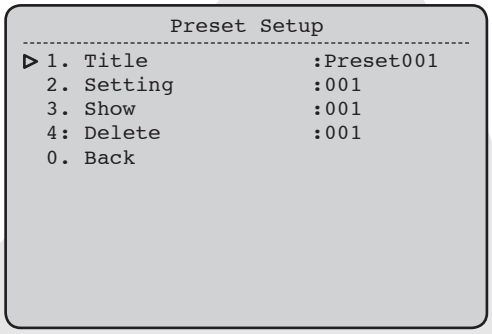
5.7 Auto Running

System Menu > Auto Running Setup



5.7.1 Preset Setup

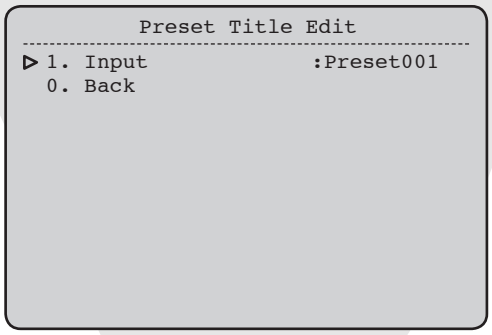
System Menu > Auto Running Setup > Preset Setup



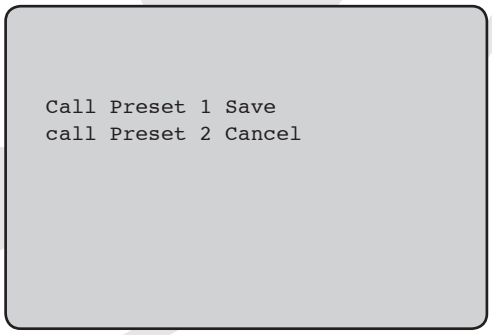
Preset is the point that user saves for frequent use. A preset saves both direction and zoom parameters, the camera will quickly and precisely go and zoom to a specific point if a preset is called. e.g. If you often want to see the door, you can set the point of door as preset P, then you can see the door simply by calling the preset P. This dome has 220 presets.

Note: preset 95 is reserved for accessing dome menu.

- **Title:** To set the preset title. Move the joystick left or right to select the target letter, Turn joystick clockwise or anti-clockwise to select input method. Move up or down to select the desired letter, number or character.



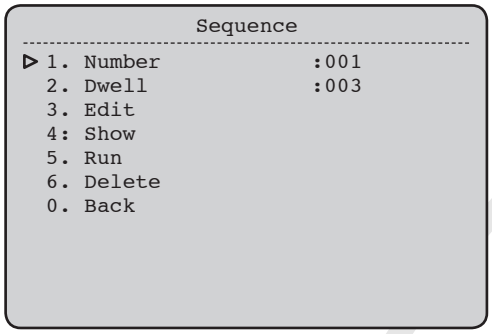
- **Setting:** Select a preset number then move right. The following menu will display. Move to the desired position and zoom to a suitable level, call preset 1 to save the current preset, call preset 2 to cancel.



- **Show:** Select a preset number and show the preset position.
- **Delete:** Select a preset number and delete.

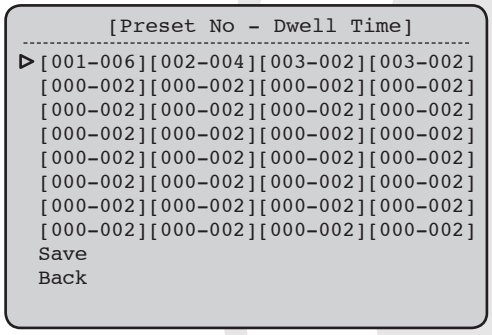
5.7.2 Sequence

System Menu > Auto Running Setup > Sequence Setup



A "sequence" is defined as a sequencial moving from preset to preset and dwell for a specific time at each preset. It is useful if you need to repeat switching among a number of presets. E.g. A shopping mall has several entrances. A sequence can automatically loop the position of each entrance. 4 sequences can be set for the dome. Each sequence can contain up to 32 presets and dwell time for each preset is independent.

- **Number:** Shows the current sequence number. Values are 001~004. Pan right then tilt up or down to select other sequence.
- **Dwell:** Sets the default dwell time in seconds for each preset. Value ranges from 000~255. For example, Dwell: 001, all presets' dwell time is 1 second, user can set independent dwell time for each preset in Edit menu.
- **Edit:** To edit the presets and corresponding dwell time in a Sequence. The following picture shows the edit menu.



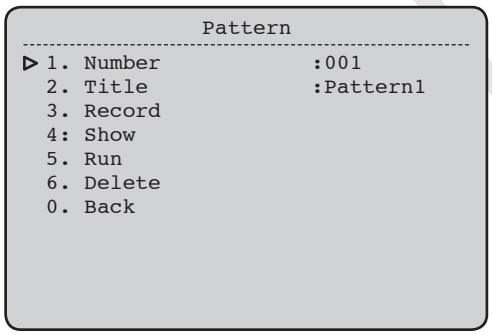
E.g. 003-002 means accessing preset 003 and dwell for 2 seconds. Move joystick left or right to select editing item, move up or down to change value.In picture above, the tour starts from preset 1 dwelling 2 seconds, then goes to preset 2 dwelling 4 seconds, then preset 3 dwelling 2 seconds and finally preset 4 dwelling 1 second. Select Save to save the sequence, select Back to quit without saving.

Note: When a preset's dwell time is set 0, system will skip that preset. System will consider preset 0 as the end of a sequence.

- **Show:** To run the current sequence once. Use this function to check the sequence.
- **Run:** To run the current sequence continuously. System will loop the sequence.
- **Delete:** To delete current sequence.

5.7.3 Pattern Setup

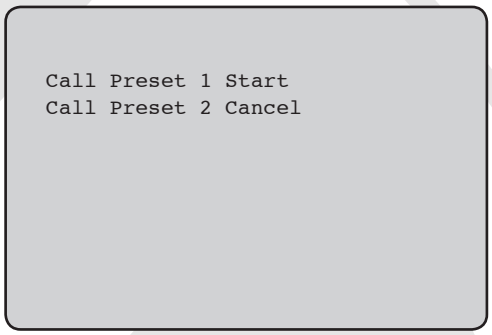
System Menu > Auto Running Setup > Pattern Setup

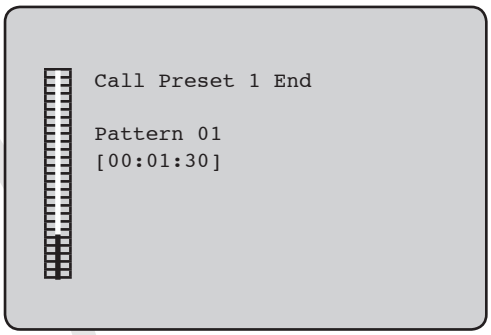


A pattern records a continuous movement of the camera in a period of time. The difference between sequence and pattern is that in a sequence, dome moves from a preset to next at a fixed speed; in a pattern, dome moves flexible curve at various speed.

Speed Dome can record 4 patterns, minimum 180 seconds each pattern.

- **Number:** Indicates the current pattern number. Values are 001~004. Pan right then tilt up or down to select another pattern
- **Title:** Title is the title of the Pattern. Assigning a name to a Pattern helps user to remember which pattern it is.
- **Record:** To start recording the pattern. The recording begins immediately after calling preset 1 or call preset 2 to cancel the recording.





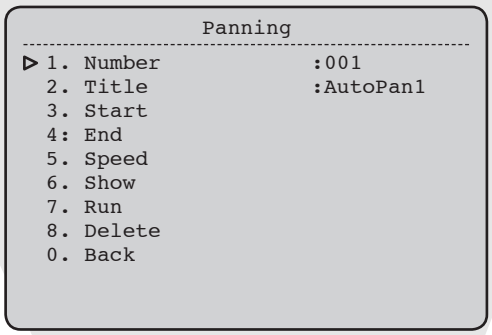
Column on the left shows the time lapse and volume of the pattern memory.

Note: Pattern memory only records the operation of pan/tilt and lens command.

- **Show:** To run the current pattern once. Use this function to check the pattern.
- **Run:** To run the current pattern continuously. System will loop the pattern.
- **Delete:** To delete current pattern.

5.7.4 Panning Setup

System Menu > Auto Running Setup > Panning Setup

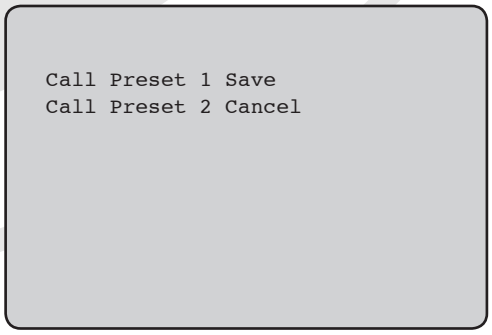


Panning enables user to scan back and forth an area between two parallel sites(with same vertical degree) at a definable speed. e.g. If two sites (A & B) are set, the camera will loop between the two sites: A→B→A→B.

Notes:

- Dome makes horizontal movement only.
- This dome has a maximum of 4 Panning settings.
- If the camera has been zoomed to a desired level then during panning, the camera will keep that zoom.

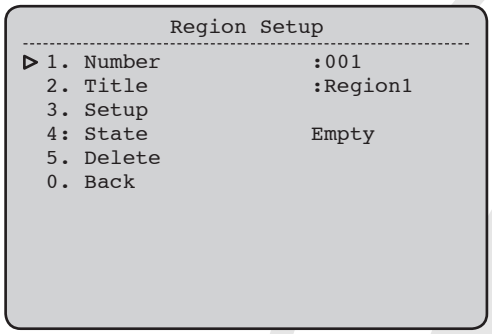
- **Number:** Display the current panning number. Values are 001~004. Pan right then tilt up or down to select other panning.
- **Title:** Designate the title of the panning. Assigning a name to a panning helps user to remember which panning it is.
- **Start:** To set the start position. Move the camera to a particular position and call preset 1 to save or call preset 2 to cancel.



- **End:** To set the ending position. Set it in the same way as Start.
- **Speed:** Sets the panning speed (Dome movement speed). Value ranges from 001 to 255, the higher value represents the higher speed. Pan right to select, tilt up or down to change value.
- **Show:** To run the current panning once, use this function to check the panning
- **Run:** To run the panning continuously.

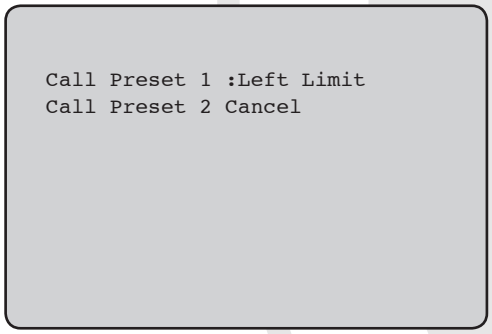
5.7.5 Region Setup

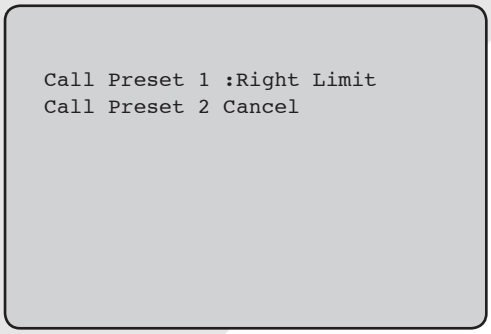
System Menu > Auto Running Setup > Region Setup



A region is an area between two sites. User can assign a title for a REGION. (E.g. Dangerous area). Whenever the camera moves into the region, the title will display on the screen to alert the user.

- **Number:** Displays the current region number. Values ranges from 001~008. Pan right then tilt up or down to select another region.
- **Title:** Set the region title.
- **Setup:** Move to the desired position and call preset 1 to save left limit or call preset 2 to cancel. After setting the left limit, below menu will pop-up, set the right limit as the same way as setting left limit

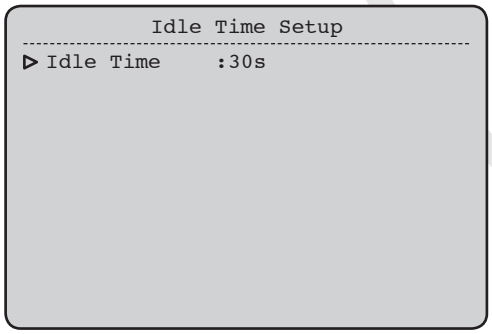




- **State:** Indicate the current region is existing or empty
- **Delete:** Delete current region.

5.7.6 Idle Time Setup

System Menu > Auto Running Setup > Idle Time Setup

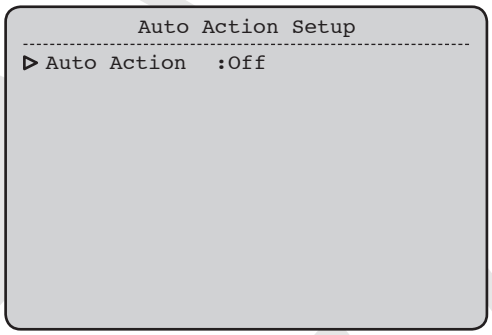


This function let the system automatically run assigned function after the idle time. For example: the dome is running a sequence and an operator breaks the sequence to do other work, the dome can automatically carry on the sequence within a period of time after the operator finishes using it.

- **Idle Time**: It is a specific time without any operation being performed. The values include: Off, 003s~255s (seconds).

5.7.7 Auto Action Setup

System Menu > Auto Running Setup > Auto Action Setup

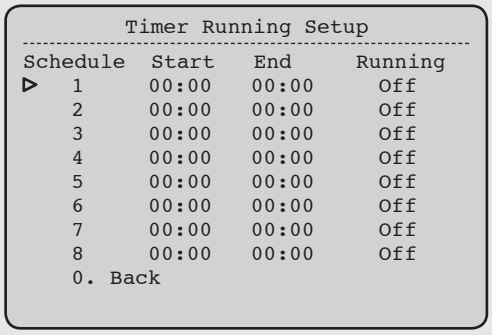


Auto action refers to the function that system will automatically run when idle time is out. Setting include:

- **OFF:** Disable this function
- **Preset (1~220):** Call preset 001~220
- **Panning (1~4):** Run panning 001~004
- **Sequence (1~4)**: Run sequence 001~004
- **Pattern (1~4):** Run pattern 001~004

5.8 Timer Running Setup

System Menu > Timer Running Setup



This function allows the system to run specified functions during the scheduled time. For example, let the dome run a Pattern from 3 to 5 pm without any operator controlling the dome at that time.

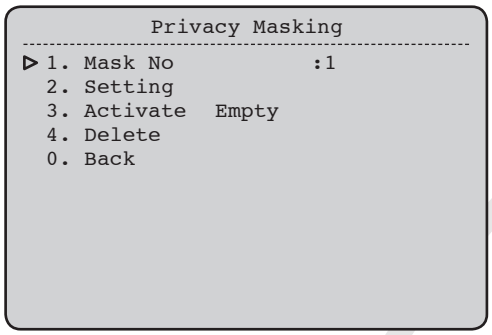
- **Schedule:** Display current time slot index number. 8 time slots are available. Move joystick to the right to set this schedule or move up or down to select another time slot.
- **Start:** Set the start time of Timer Running.
- **End:** Set the stop time of Timer Running.
- **Running:** Enable the timer running functions during the specified period of time.
  - **OFF:** Disable timer running function.
  - **Preset (1~220):** Enable Preset function.
  - **Sequence (1~4):** Enable Sequence function.
  - **Pattern (1~4):** Enable Pattern function.
  - **Panning (1~4):** Enable Panning function.

NOTE:

- The specified time can not be overlapped otherwise, the assigned Timer Running functions are ineffective.
- Timer Running function will take priority over Auto Action function.
- Operations on keyboard will override the Timer Running function, however the function will continue after 10 seconds idle time.

5.9 Privacy Masking

System Menu > Privacy Masking



The feature of privacy masking can be used to protect public privacy. e.g. a resident's window, a toilet. Integrated Speed Dome can cover a black square on some particular locations.

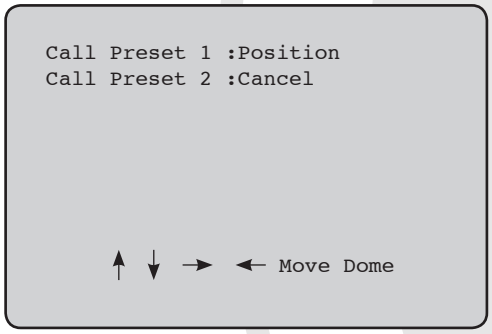
- **Mask No:** Display the current masking zone number. Values are 1~8 or 1~4. Pan right then tilt up or down to select another masking zone.
- **Setting:** Select this menu item to set the position and size of the masking zone. There are two setting methods for different model dome, please refer to your supplier which method your model is.

Method A

The setting has three steps:

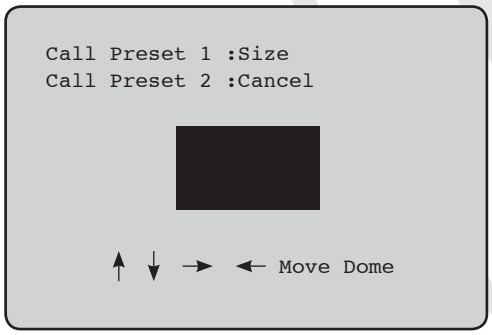
1. Choose area

Move the camera to your desired area and call preset 1 to confirm.



2. Set position

Enter setting, the following window will pop up. Move the black square to the desired position, call preset 1 to save. Tip: Put the top left corner of the black square on the desired position because the black square can expand down and right only.



3. Set size

Move the joystick to adjust the size of the black square, call preset 1 to save.

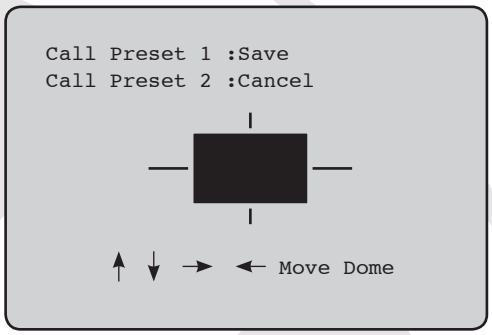
- **Activate:** Enable / disable the current privacy masking. (ON: enable, OFF: disable) The zoom times for Privacy Masking activation is effective for certain models only. When zoom times is higher than a specific value, the dome will auto activate the privacy mask.
- **Delete :** To delete current privacy masking.

Method B

The setting has two steps:

4. Choose area

Move the cross to the centre of desired position, call preset 1 to save the position then go to step 2 or call preset 2 to cancel.



5. Set size

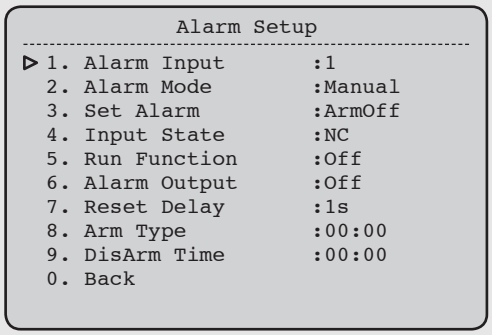
Move up, down, left or right to adjust the size, call preset 1 to save or call preset 2 to cancel.

Note: One screen has limited number of privacy mask. If the masking number exceeds, system will pop up an alert message: 'Position Error'. User can choose other place or delete other masking to set a new one.

- **Activate:** To indicate whether this privacy masking is existing or not. (Empty: Not set. Open: Existing)
- **Delete :** To delete current privacy masking.

5.10 Alarm Setup

System Menu > Alarm Setup



- **Alarm Input:** Select the number of alarm input channel (1-7).
- **Alarm Mode:** Auto or manually set alarm.
  - **Auto:** Dome will set alarm based on Arm Time and DisArm time.
  - **Manual:** Manually set alarm in following item
- **Set Alarm:** Arm off or Arm on.
  - **Set Alarm:** Arm off or Arm on (Disable or enable the alarm input channel)
- **Input State:** Select current alarm input channel's normal state. NO or NC (normal open or normal close).
- **Run Function:** Set auto respond function.
  - **Off**
  - **Preset (001-220)**
  - **Panning (1-4)**
  - **Pattern (1-4)**
  - **Sequence (1-4)**
- **Alarm Output:** Select respond output channel for current input channel. Off, 1, 2, 1&2.
- **Reset Delay:** Set the time that system will auto reset the alarm after current alarm inputs
  - **Values:** 1 second to 255 second.
- **Arm Time:** Set the alarm enable time.
- **DisArm Time:** Set the alarm disable time.

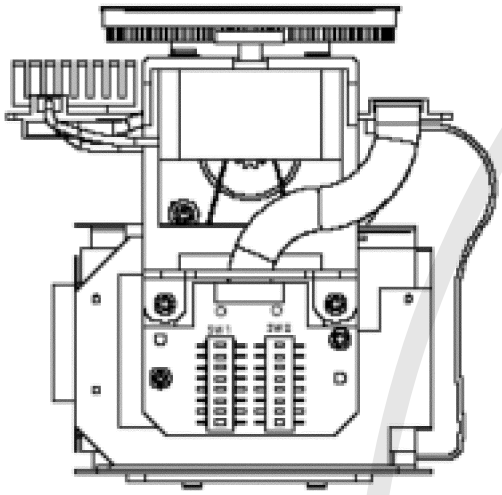
Note: It only takes effect when alarm mode is set auto.

Appendix I: DIP Switch & Jumper Settings

This appendix guides you to set protocol, baud rate, dome address, video cable type, alarm output and resistor jumper.

DIP SWITCHES' POSITION

The corresponding DIP-switches' positions are shown below:



PROTOCOL AND BAUD RATE SETTING

SW2 is used to set protocol and baud rate. The first six (1-6) bits of SW2 are for protocol setting and the last two (7-8) bits are for baud rate setting. Below chart shows the setting details. O means ON, blank means OFF. Default setting is 4800 bps.

Baud Rate	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
2400bps								
4800bps							O	
9600bps								O
19200bps							O	O

NOTE: If you are using AD or PHILIPS or BBV protocol, please set the baud rate to 19200 bps.

This speed dome supports multi-protocol. The setting chart is shown below, O means ON, blank means OFF, X means either ON or OFF. Default setting is factory.

Protocol	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
FACTORY								
VCL	O							
PELCO_P		O						
PELCO_D	O	O						
MOLYNK			O					
VICON	O		O					
DIAMOND		O	O					
KATATEL	O	O	O					
Reserved				O				
Reserved	O			O				
Reserved		O		O				
PELCO_C*	O	O		O				
Reserved			O	O				
Reserved	O		O	O				
Reserved		O	O	O				
AD*	O	O	O	O				
Reserved					O			
PANASONIC	O				O			
Reserved		O			O			
SENSORNET*	O	O			O			
Reserved			O		O			
B8V*	O		O		O			
Reserved		O	O		O			
Reserved	O	O	O		O			
Reserved				O	O			
Reserved	O			O	O			
Reserved		O		O	O			
Reserved	O	O		O	O			
Reserved			O	O	O			
Reserved	O		O	O	O			
Reserved		O	O	O	O			
Reserved	O	O	O	O	O			
PHILIPS*	X	X	X	X	X	O		

NOTE: Protocols marked with * need another protocol board.

DOME ADDRESS SETTING

The control commands contain target dome's ID. The dome only reacts to the command sent to its own address or broadcast address. So, each dome should be assigned an address. Four kinds of IDs are applicable for domes:

- **Hard ID:** Hard ID is set via DIP SW1, it can not be changed from OSD menu. Hard ID ranges from 1 to 255.
- **Programmable ID:** Set all 8-bits of SW1 to ON to activate programmable address. Input 10-bit camera SN number, and then set dome ID by controller (The dome SN number can be found on the side of the camera or on the package.).
- **Debug ID:** Set all the bites of the SW1 to 0 (all OFF), the dome will react to any command for any ID.

NOTE: Debug ID only works with Factory protocol.

- **Broadcast ID:** When a command is sent to broadcast ID, all domes connected to the control bus will respond to that command. Broadcast ID is definable, ranges from 1 to 255, the default broadcast ID is 255.

SW1 is used for setting dome ID. The setting is strictly in accordance with binary system, if you are not familiar with binary system please look up the address setting chart.

NOTE: When using Philips protocol, the first 5 bits of SW2 and all bits of SW1 are for address setting. Max address can be 8191. Example: in order to set address 2657, set bit 1, 6, 7 of SW1 and bit 2, 4 of SW2 ON. (2657=1+32+64+512+2048)

ADDRESS SETTING CHART

O means ON, blank means OFF.

ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
0								
1	O							
2		O						
3	O	O						
4			O					
5	O		O					
6		O	O					
7	O	O	O					
8				O				
9	O			O				
10		O		O				
11	O	O		O				
12			O	O				
13	O		O	O				
14		O	O	O				
15	O	O	O	O				
16					O			
17	O				O			
18		O			O			
19	O	O			O			
20			O		O			
21	O		O		O			
22		O	O		O			
23	O	O	O		O			
24				O	O			
25	O			O	O			
26		O		O	O			
27	O	O		O	O			
28			O	O	O			
29	O		O	O	O			
30		O	O	O	O			
31	O	O	O	O	O			
32						O		
33	O					O		
34		O				O		
35	O	O				O		
36			O			O		
37	O		O			O		
38		O	O			O		
39	O	O	O			O		
40				O		O		
41	O			O		O		
42		O		O		O		
43	O	O		O		O		

ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
44			○	○		○		
45	○		○	○		○		
46		○	○	○		○		
47	○	○	○	○		○		
48					○	○		
49	○				○	○		
50		○			○	○		
51	○	○			○	○		
52			○		○	○		
53	○		○		○	○		
54		○	○		○	○		
55	○	○	○		○	○		
56				○	○	○		
57	○			○	○	○		
58		○		○	○	○		
59	○	○		○	○	○		
60			○	○	○	○		
61	○		○	○	○	○		
62		○	○	○	○	○		
63	○	○	○	○	○	○		
64							○	
65	○						○	
66		○					○	
67	○	○					○	
68			○				○	
69	○		○				○	
70		○	○				○	
71	○	○	○				○	
72				○			○	
73	○			○			○	
74		○		○			○	
75	○	○		○			○	
76			○	○			○	
77	○		○	○			○	
78		○	○	○			○	
79	○	○	○	○			○	
80					○		○	
81	○				○		○	
82		○			○		○	
83	○	○			○		○	
84			○		○		○	
85	○		○		○		○	
86		○	○		○		○	
87	○	○	○		○		○	

ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
88				○	○		○	
89	○			○	○		○	
90		○		○	○		○	
91	○	○		○	○		○	
92			○	○	○		○	
93	○		○	○	○		○	
94		○	○	○	○		○	
95	○	○	○	○	○		○	
96						○	○	
97	○					○	○	
98		○				○	○	
99	○	○				○	○	
100			○			○	○	
101	○		○			○	○	
102		○	○			○	○	
103	○	○	○			○	○	
104				○		○	○	
105	○			○		○	○	
106		○		○		○	○	
107	○	○		○		○	○	
108			○	○		○	○	
109	○		○	○		○	○	
110		○	○	○		○	○	
111	○	○	○	○		○	○	
112					○	○	○	
113	○				○	○	○	
114		○			○	○	○	
115	○	○			○	○	○	
116			○		○	○	○	
117	○		○		○	○	○	
118		○	○		○	○	○	
119	○	○	○		○	○	○	
120				○	○	○	○	
121	○			○	○	○	○	
122		○		○	○	○	○	
123	○	○		○	○	○	○	
124			○	○	○	○	○	
125	○		○	○	○	○	○	
126		○	○	○	○	○	○	
127	○	○	○	○	○	○	○	
128								○
129	○							○
130		○						○
131	○	○						○

ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
132			○					○
133	○		○					○
134		○	○					○
135	○	○	○					○
136				○				○
137	○			○				○
138		○		○				○
139	○	○		○				○
140			○	○				○
141	○		○	○				○
142		○	○	○				○
143	○	○	○	○				○
144					○			○
145	○				○			○
146		○			○			○
147	○	○			○			○
148			○		○			○
149	○		○		○			○
150		○	○		○			○
151	○	○	○		○			○
152				○	○			○
153	○			○	○			○
154		○		○	○			○
155	○	○		○	○			○
156			○	○	○			○
157	○		○	○	○			○
158		○	○	○	○			○
159	○	○	○	○	○			○
160						○		○
161	○					○		○
162		○				○		○
163	○	○				○		○
164			○			○		○
165	○		○			○		○
166		○	○			○		○
167	○	○	○			○		○
168				○		○		○
169	○			○		○		○
170		○		○		○		○
171	○	○		○		○		○
172			○	○		○		○
173	○		○	○		○		○
174		○	○	○		○		○
175	○	○	○	○		○		○

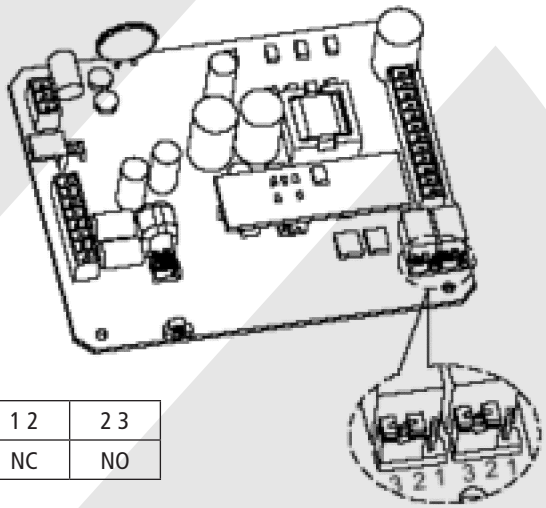
ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
176					○	○		○
177	○				○	○		○
178		○			○	○		○
179	○	○			○	○		○
180			○		○	○		○
181	○		○		○	○		○
182		○	○		○	○		○
183	○	○	○		○	○		○
184				○	○	○	○	○
185	○			○	○	○	○	○
186		○		○	○	○	○	○
187	○	○		○	○	○	○	○
188			○	○	○	○	○	○
189	○		○	○	○	○	○	○
190		○	○	○	○	○	○	○
191	○	○	○	○	○	○	○	○
192							○	○
193	○						○	○
194		○					○	○
195	○	○					○	○
196			○				○	○
197	○		○				○	○
198		○	○				○	○
199	○	○	○				○	○
200				○			○	○
201	○			○			○	○
202		○		○			○	○
203	○	○		○			○	○
204			○	○			○	○
205	○		○	○			○	○
206		○	○	○			○	○
207	○	○	○	○			○	○
208					○		○	○
209	○				○		○	○
210		○			○		○	○
211	○	○			○		○	○
212			○		○		○	○
213	○		○		○		○	○
214		○	○		○		○	○
215	○	○	○		○		○	○
216				○	○		○	○
217	○			○	○		○	○
218		○		○	○		○	○
219	○	○		○	○		○	○

ID	Switch Number							
	ON							
	1	2	3	4	5	6	7	8
220			○	○	○		○	○
221	○		○	○	○		○	○
222		○	○	○	○		○	○
223	○	○	○	○	○		○	○
224						○	○	○
225	○					○	○	○
226		○				○	○	○
227	○	○				○	○	○
228			○			○	○	○
229	○		○			○	○	○
230		○	○			○	○	○
231	○	○	○			○	○	○
232				○		○	○	○
233	○			○		○	○	○
234		○		○		○	○	○
235	○	○		○		○	○	○
236			○	○		○	○	○
237	○		○	○		○	○	○
238		○	○	○		○	○	○
239	○	○	○	○		○	○	○
240					○	○	○	○
241	○				○	○	○	○
242		○			○	○	○	○
243	○	○			○	○	○	○
244			○		○	○	○	○
245	○		○		○	○	○	○
246		○	○		○	○	○	○
247	○	○	○		○	○	○	○
248				○	○	○	○	○
249	○			○	○	○	○	○
250		○		○	○	○	○	○
251	○	○		○	○	○	○	○
252			○	○	○	○	○	○
253	○		○	○	○	○	○	○
254		○	○	○	○	○	○	○
255 Programmable Address	○	○	○	○	○	○	○	○

ALARM OUTPUT METHOD SETTING

There are two alarm output methods: NO and NC. NO means normal state is open circuit, the circuit will be closed when an alarm comes in. NC means normal close circuit.

When choosing pins 1&2 in JP6 and JP7,the alarm output state is NC. When choosing pins 2&3 in JP6 and JP7, the alarm output state is NO. Factory default is NO. (Refer to the following picture):

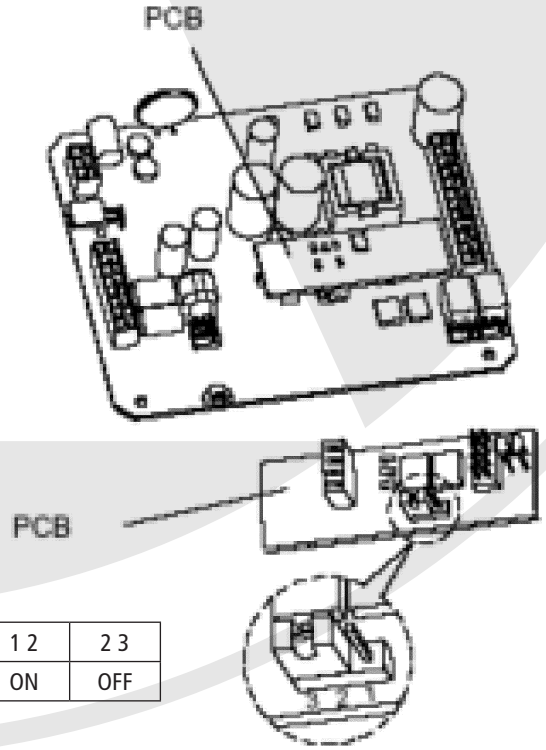


1 2	2 3
NC	NO

RESISTOR JUMPER SETTING

RS485 bus needs two 120 Ohm resistors at both ends. Set on the 120 Ohm resistors of the two devices (keyboard or dome) in the farthest distance on RS485 bus. Default setting is OFF.

When connecting pins 1&2 in JP1, the 120 Ohms termination resistor is connected. When connecting pins 2&3 in JP1, the termination resistor is unconnected.



1 2	2 3
ON	OFF

Appendix 2: Wire Diameter & Transmission Distance Comparison Chart

The transmission distance listed below are farthest ones recommended for each given wire diameter when the 24V AC voltage loss ratio is below 10% (for equipment powered by AC, the allowed maximum voltage loss ratio is 10%).For example, a set of equipment with nominal power as 80VA, installed 35 feet (10m) away from transformer, needs a wire with a minimum diameter of 0.8000mm.

	Minimum Diameter of Wire (mm)			
Power (VA)	**0.8000**	**1.000**	**1.250**	**2.000**
10	283 ft / 86 m	451 ft / 137 m	716 ft / 218 m	1811 ft / 551 m
20	141 ft / 42 m	225 ft / 68 m	358 ft / 109 m	905 ft / 275 m
30	94 ft / 28 m	150 ft / 45 m	238 ft / 72 m	603 ft / 183 m
40	70 ft / 21 m	112 ft / 34 m	179 ft / 54 m	452 ft / 137 m
50	56 ft / 17 m	90 ft / 27 m	143 ft / 43 m	362 ft / 110 m
60	47 ft / 14 m	75 ft / 22 m	119 ft / 36 m	301 ft / 91 m
70	40 ft / 12 m	64 ft / 19 m	102 ft / 31 m	258 ft / 78 m
80	35 ft / 10 m	56 ft / 17 m	89 ft / 27 m	226 ft / 68 m
90	31 ft / 9 m	50 ft / 15 m	79 ft / 24 m	201 ft / 61 m
100	28 ft / 8 m	45 ft / 13 m	71 ft / 21 m	181 ft / 55 m
110	25 ft / 7 m	41 ft / 12 m	65 ft / 19 m	164 ft / 49 m
120	23 ft / 7 m	37 ft / 11 m	59 ft / 17 m	150 ft / 45 m
130	21 ft / 6 m	34 ft / 10 m	55 ft / 16 m	139 ft / 42 m
140	20 ft / 6 m	32 ft / 9 m	51 ft / 15 m	129 ft / 39 m
150	18 ft / 5 m	30 ft / 9 m	47 ft / 14 m	120 ft / 36 m
160	17 ft / 5 m	28 ft / 8 m	44 ft / 13 m	113 ft / 34 m
170	16 ft / 4 m	26 ft / 7 m	42 ft / 12 m	106 ft / 32 m
180	15 ft / 4 m	25 ft / 7 m	39 ft / 11 m	100 ft / 30 m
190	14 ft / 4 m	23 ft / 7 m	37 ft / 11 m	95 ft / 28 m
200	14 ft / 4 m	22 ft / 6 m	35 ft / 10 m	90 ft / 27 m

Transmission Distance (Feet / Metres)

Wire Gauge Conversion Chart

Bare Wire Diameter metric size (mm)	AWG (approx)	SWG (approx)	QQ-1 type Max outer diameter (mm)	Bare Wire cross-sectional (mm)
0.050	43	47	0.065	0.00196
0.060	42	46	0.080	0.00283
0.070	41	45	0.90	0.00385
0.080	40	44	0.100	0.00503
0.090	39	43	0.110	0.00636
0.100	38	42	0.125	0.00785
0.110	37	41	0.135	0.00950
0.130	36	39	0.155	0.01327
0.140	35		0.165	0.01539
0.160	34	37	0.190	0.02011
0.180	33		0.210	0.02545
0.200	32	35	0.230	0.03142
0.230	31		0.265	0.04115
0.250	30	33	0.290	0.04909
0.290	29	31	0.330	0.06605
0.330	28	30	0.370	0.08553
0.350	27	29	0.390	0.09621
0.400	26	28	0.440	0.1257
0.450	25		0.490	0.1602
0.560	24	24	0.610	0.2463
0.600	23	23	0.650	0.2827
0.710	22	22	0.760	0.3958
0.750	21	21	0.810	0.4417
0.800	20	21	0.860	0.5027
0.900	19	20	0.960	0.6362
1.000	18	19	1.07	0.7854
1.250	16	18	1.33	1.2266
1.500	15		1.58	1.7663
2.000	12	14	2.09	3.1420
2.500			2.59	4.9080
3.000				7.0683

Appendix 3: RS485 Bus Basic Knowledge

1. CHARACTERISTICS OF RS485 BUS

As specified by RS485 standards, RS485 Bus is of half-duplexed data transmission cables with characteristic impedance as 120 Ohm. The maximum load capacity is 32 unit loads (including main controller and controlled equipment).

2. TRANSMISSION DISTANCES OF RS485 BUS

When user selects the 0.56mm (24AWG) twisted pair wires as data transmission cable,the maximum theoretical transmitting distances are as follows:

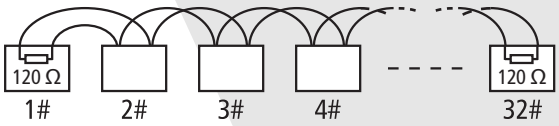
Baud Rate	Transmission Distance (Max.)
2400bps	5,906ft (1800m)
4800bps	3,937ft (1200m)
9600bps	2,625ft (800m)

If user selects thinner cables, or installs the dome in an environment with strong electromagnetic interference, or connects lots of equipment to the RS485 Bus, the maximum transmitting distance will be decreased. To increase the maximum transmitting distance, do the contrary.

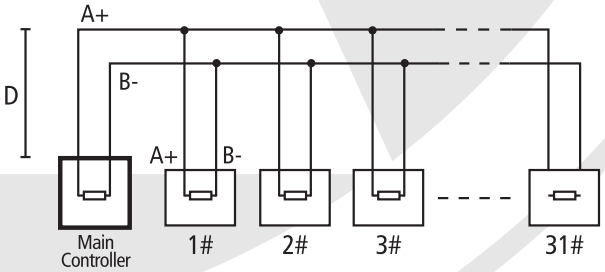
3. CONNECTION AND TERMINATION RESISTOR

3.1 Daisy Chain Connection

The RS485 standards require a daisy-chain connection between the equipment. There must be termination resistors with 120 Ohm impedance at both ends of the connection (refer to following pictures).



Please refer to below picture for simple connection. Distance "D" should not exceed 7 meters.



3.2 The connection of 120 Ohm termination resistor:

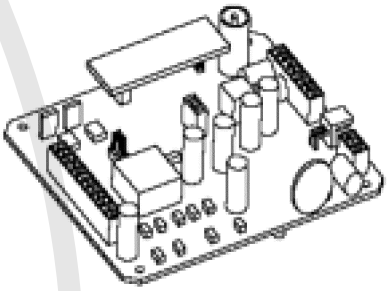
The termination resistor is ready on the Protocol PCB. There are two kinds of connection. Please refer to the Protocol PCB jumper setting form (refer to following pictures).

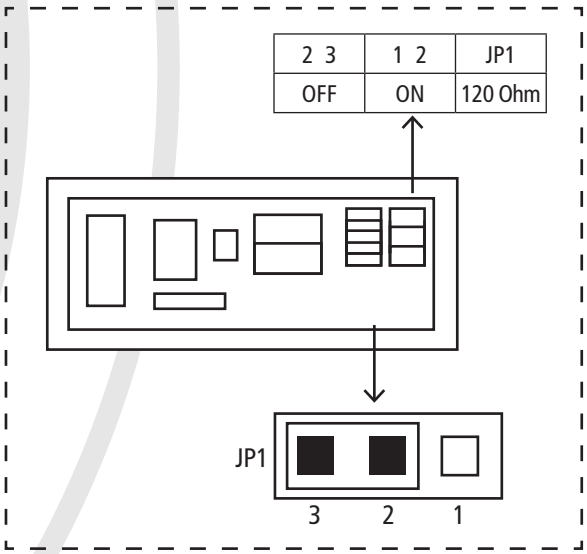
a) In the Picture it is the factory default connection.

The jumper is seated on Pin 2 & Pin 3 and the termination resistor is not connected.

b) when connecting the 120 Ohm termination resistor, user should pull out the protocol PCB and plug the jumper on Pin 1 & Pin 2.

Install the PCB back and the termination resistor is connected.

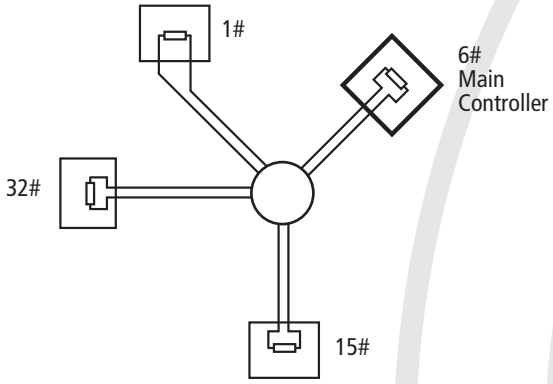




4. PROBLEMS IN PRACTICAL CONNECTION

In some circumstances user adopts a star configuration in practical connection. The termination resistors must be connected to the two equipment that are farthest away from each other, such as equipment 1# and 15# as shown below. As the star configuration is not in conformity with the requirements of RS485 standards, problems such as signal reflections, lower anti-interference performance arise when the cables are long in the connection.

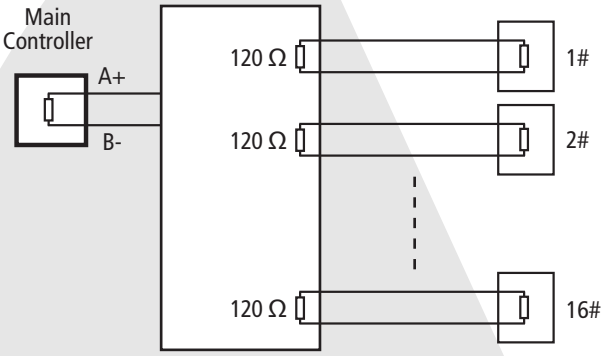
The reliability of control signals is decreased with the phenomena that the dome does not respond to or just responds at intervals to the controller, or does continuous operation without stop (Refer to the following picture):



In such circumstances the factory recommends the using an RS485 distributor. The distributor can change the star configuration connection to the mode of connection stipulated in the RS485 standards.

NOTE: The RS485 distributor is not supplied with the XPS036 Speed Dome.

The new connection achieves reliable data transmission (Refer to following picture):



5. RS485 BUS TROUBLESHOOTING

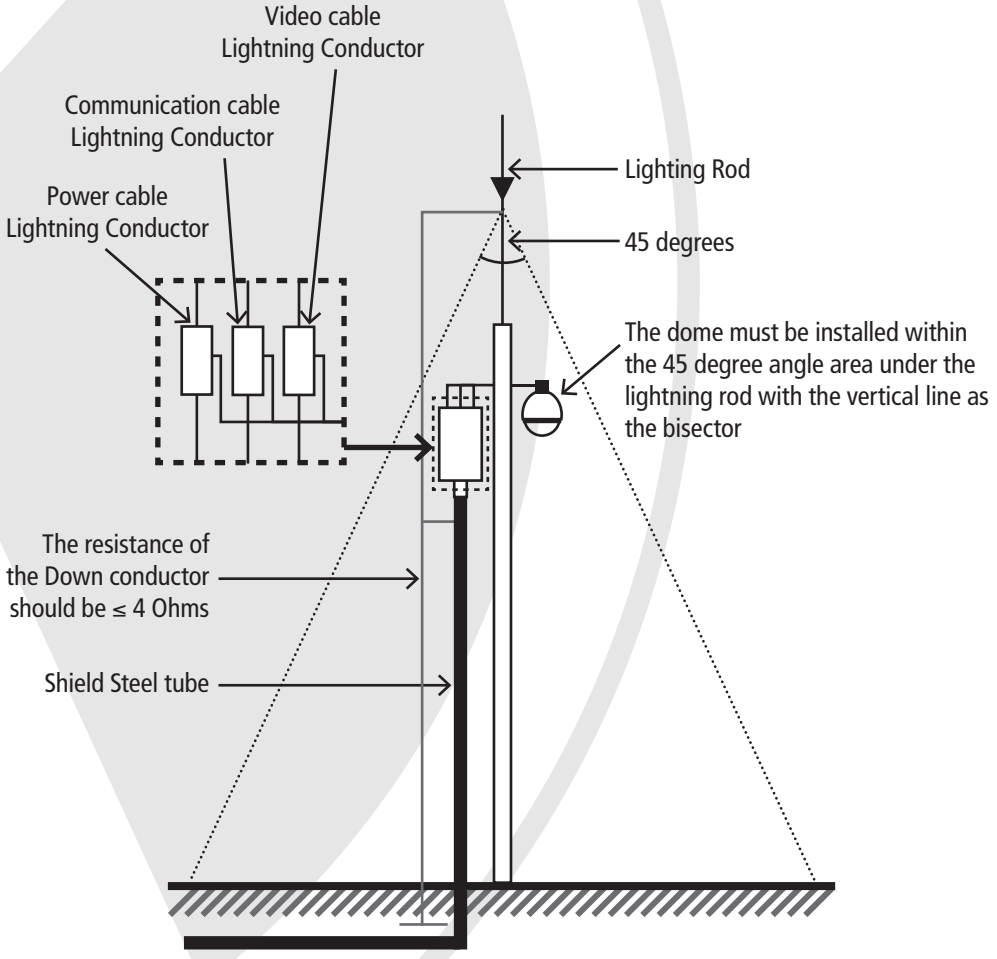
Refer to following form:

Problem	Possible Cause	Solution
Dome cannot be controlled	**1.** The address and baud rate settings of dome are not in conformity with those of controller **2.** The"+"and "-"connection of RS485 distributor is incorrect **3.** Wiring is not fully seated **4.** There is breakage in the middle section of the RS485 distributor	**1.** Change the address and baud rate of controller or dome **2.** Correct the connection **3.** Make sure the connections are fully seated
The dome can be controlled but the operation is not smooth	**1.** The RS485 distributor cable is not connected properly **2.** The RS485 distributor cable is faulty **3.** The dome is too far away from the controller **4.** There are too many domes connected in the system	**1.** Secure the connection **2.** Replace RS485 distributor cable **3.** Add termination resistors to the system **4.** Install RS485 distributor

Appendix 4: Lightning Proof & Surge Proof

The product adopts TVS lightning proof technology to prevent from damage by lightning strike below 4000V and impulse signals such as surge; but it is also necessary to abide by the following precautions to ensure electrical safety based on practical circumstances:

- Keep the communication cables at least 50 meters away from high voltage equipment or cables.
- Make outdoor cable laying-out under eaves as possible as you can.
- In open area shield cables in steel tube and conduct a single point ground to the tube. Trolley wire is forbidden in such circumstances.
- In strong thunderstorm or high faradic zone (such as high voltage transformer substation), extra strong lightning proof equipment must be installed.
- Take the building lightning proof requirements into account to design the lightning proof and grounding of outdoor equipment and cable laying-out in accordance with the national and industrial standards.
- The system must be grounded with equal potentials.
- The earth ground connection must satisfy the anti-interference and electrical safety requirements and must not short circuit with high voltage electricity net. When the system is grounded separately, the impedance of down conductor should be less than 4 Ohms and the sectional area of down conductor should be greater than 25mm^2. (Refer to following picture):


Video cable
Lightning Conductor
Communication cable
Lightning Conductor
Power cable
Lightning Conductor
Lighting Rod
45 degrees
The dome must be installed within the 45 degree angle area under the lightning rod with the vertical line as the bisector
The resistance of the Down conductor should be ≤ 4 Ohms
Shield Steel tube

Appendix 5: The Cleaning Of the Dome Cover

To obtain constant clear videos, user should clean the down cover periodically.

- Be cautious when cleaning. Hold the down cover ring only to avoid direct touch to the acrylic down cover. The acid sweat mark of fingerprint will corrode the coating of down cover and scratch on down cover will cause blurred/unclear images.
- Use soft dry cloth or the substitute to clean the inner and outer surfaces.
- For hard contamination, use neutral detergent. Any cleanser for high grade furniture is applicable.

Appendix 6: Troubleshooting

Problem	Possible Cause	Solution
No action, no video after dome is powered up	**1.** If the red LED on the power board in the housing is NOT lit, causes may be: - The 24V AC power supply is not connected to the port of the power board or the contact is not good - The municipal power supply has been cut off or the 24V AC transformer is in malfunction **2.** If the red LED on the power board in the housing IS lit, causes may be: - Fuse is bad or it is not installed - The MOLEX is not connected to RJ45 or the connection is not good in contact; the power PCB is not connected to receiver PCB or the connection is not good in contact - 24V AC transformer outputs voltage is too low - The power PCB is faulty	**1.** Check if the power supply is connected, or confirm if the plug contacts well **2.** Check to see if the municipal power supply has been cut off. Check to see if the 24V AC transformer is OK. - Replace the fuse. The fuse is a 4-ampere one - Check and confirm all the wire connections are correct and have good contact - Use a voltmeter to check the voltage load to the dome. Make sure the voltage is above 16V. - Please contact factory or distributor for replacement of power PCB
The dome is uncontrollable	**1.** The dome DIP switch setting is incorrect **2.** The two poles of the control cables are connected wrongly or the connection is open	**1.** Reset the DIP switches according to the DIP switch chart **2.** Check the control cables and confirm the connection is correct and firmly connected
Fan does not function	**1.** Wire connection of fan is faulty or not connected properly	**1.** Connect the fan wire. If the fan still does not function, contact the distributor or factory
Vague image	**1.** Manual focus has been set **2.** Unclean dome cover	**1.** Operate dome or call any preset **2.** Clean the dome cover

Appendix 7: Specifications

Model:	XPS036
Picture Type:	Day/Night (B/W & Colour)
Image Sensor:	Sony 1/4" Ex View CCD
DSP:	Xvision XX2
Resolution:	550/600 TVL
Minimum Illumination:	0.1 Lux
Lens Type:	Auto Iris
Lens Size:	3.4 to 122.4mm
Lens Viewing Angle:	0.5 to 64°
Zoom:	36x Optical, 12x Digital
Audio:	No
Operating Voltage:	24V AC 2500mA, 50/60Hz
Suggested Power Supply:	Supplied
Mounting:	Wall (as supplied) Additional mounts & brackets are available for Corner Mount, Pendant Ceiling Mount and Pole Mounting options.
Weatherproofing:	Yes

TECHNICAL SUPPORT:

For Technical Support for any Xvision product please contact your local distributor.

LIMITED WARRANTY:

This product is supplied with a 1 Year warranty. The Warranty excludes products that have been misused, (including accidental damage) and damage caused by normal wear and tear. In the unlikely event that you encounter a problem with this product, it should be returned to the place of purchase.

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